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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,946	11/20/2003	David V. Caletka	EN9-99-080US2	9039
30449	7590	11/03/2004	EXAMINER	
SCHMEISER, OLSEN + WATTS			MITCHELL, JAMES M	
SUITE 201			ART UNIT	
3 LEAR JET			PAPER NUMBER	
LATHAM, NY 12033			2813	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/717,946

Applicant(s)

CALETKA ET AL.

Examiner

James M. Mitchell

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2813

DETAILED ACTION

This office action is in response to preliminary amendment filed November 20, 2003.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the writes description, such that pads are not covered by a mask in the direction of the first dimension of an opening. A dimension is defined as a measure of spatial extent, such as width, height and length, as shown in applicant's Figures 5; the openings in the direction of either the width, height or length do in fact cover the pad. Furthermore, applicant in its specification (page 7) indicates "openings... **covering the conductive pads.**"

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2813

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-6 and 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi et al. (U.S. 6,251,704) in combination with Shirai et al. (U.S. 5,517,756).

Ouchi discloses a method of providing a chip package (Col. 10, Lines 19-27) comprising a first substrate (22) and a second substrate, board (2) that carries a chip and therefore is a carrier with copper pads (13) with reflowable solder material (6) between the pads (23,13) of the first and second substrate) and insulating material (11, 12) that covers the underlying conductive layers (Col. 10, Lines 19-27) and therefore is a mask (Col. 11, Lines 37-43; Col. 1, Lines 36-38); (cl. 2) and the first dimension larger than a second dimension (Fig 6); (cl. 13) and BGA array (i.e. "Balls" on chip; col. 4, Lines 24-30).

Ouchi does not appear to show *openings having a first and second dimension with the pads not covered by the mask in direction of the first dimension an partially covered by the mask in a direction of the second dimension*, the first dimension being elongated non-circular, elliptical is greater than the second dimension, the pads were circular with traces between the openings.

Shirai (Fig 2, 6, 7, 10, 11) teaches *openings (4,15) in an insulating mask (14) having a first and second dimension with the pads not covered by the mask in direction of the first dimension* (interpreted an mean a line going through the

Art Unit: 2813

middle of the exposed pad in one direction; i.e. Fig 2, 6, in direction of D) *and partially covered by the mask in a direction of the second dimension* (interpreted as mean a line going through the middle of the exposed pad in another direction; i.e. Fig 2, in direction of L) with the first dimension being elongated non-circular, elliptical or that the pads were circular (Col.6, Lines 60-63) with traces in between openings (trace between two openings; Fig 2).

It would have been obvious to one of ordinary skill in the art to form the insulating material mask of Shirai with opening that has *a first and second dimension with the pads not covered by the mask in direction of the first dimension and partially covered by the mask in a direction of the second dimension* with the first dimension being elongated non-circular, elliptical or that the pads were circular with traces in between in order to assure a predetermined amount of pad is available and to eliminate any concern of deviation (Col. 2, Lines 36-43) that may occur in manufacturing.

Furthermore with respect to the shape being non-circular, elliptical or any other various shape, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose these particular dimensions because applicant has not disclosed that the dimensions are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical as further evidenced by the range of possible shapes claimed, and it appears prima facie that the process would possess utility using another dimension. Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a

Art Unit: 2813

disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi et al. (U.S. 6,251,704) in combination with Shirai et al. (U.S. 5,517,756) as applied to claim 1 and further in combination with Armezzani et al. (U.S. 5,818,697):

Neither Ochi nor Shirai appear to show the solder mask is a nonwetable epoxy.

Armezzani utilizes an epoxy that is nonwetable (admitted by applicant's dependent claim 8).

It would have been obvious to one of ordinary skill in the art to form the insulating material of Ochi that surrounds a bond pad with a nonwetable epoxy in order to provide a solder mask as taught by Armezzani (Col. 5, Lines 12-37) thereby preventing damage to underlying layers.

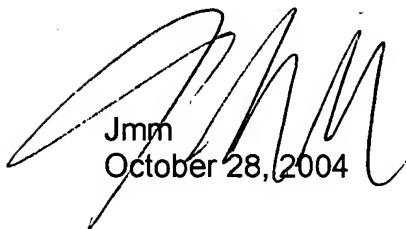
Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

Art Unit: 2813

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jmm
October 28, 2004


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